

AMENDMENTS IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An image forming apparatus comprising:
an LED print head having an LED array formed by a plurality of LED elements which are controlled to emit light in accordance with image data and a drive circuit for driving the plurality of LED elements; and
an LED array controller for driving and controlling the LED print head, wherein the LED array controller includes:
a characteristic data memory for storing a plurality of ~~pieces~~ types of characteristic data regarding each of the plurality of LED elements; and
a drive current correction data calculator for reading out the plurality of types of characteristic data from the characteristic data memory, and calculating drive current correction data for each of the plurality of LED elements on a basis of ~~the~~ a predetermined equation that includes the plurality of types of characteristic data, as variables.
2. (Withdrawn)
3. (Currently Amended) An image forming apparatus according to claim 1, wherein ~~in the characteristic data memory, one of the plurality of types of characteristic data is~~ light quantity data regarding each of the plurality of LED elements ~~is stored as the characteristic data.~~
4. (Currently Amended) An image forming apparatus according to claim 1, wherein ~~in the characteristic data memory, one of the plurality of types of characteristic data is~~ data regarding a beam emitted from each of the plurality of LED elements ~~is stored as the characteristic data.~~
5. (Currently Amended) An image forming apparatus according to claim 1, wherein

~~in the characteristic data memory; one of the plurality of types of characteristic data is~~
optical resolution data regarding each of the plurality of LED elements ~~is stored as the~~
~~characteristic data.~~

6. (Currently Amended) An image forming apparatus comprising:
an LED print head having an LED array formed by a plurality of LED elements which
are controlled to emit light in accordance with image data and a drive circuit for driving the
plurality of LED elements; and
an LED array controller for driving and controlling the LED print head,
wherein the LED array controller includes:
a characteristic data memory for storing a plurality of ~~pieces~~ types of characteristic data
regarding each of the plurality of LED elements; and
a drive current correction data calculator that, when an LED element to be corrected is
defined as a target LED element, reads out a plurality of types of characteristic data regarding the
target LED element and a plurality of types of characteristic data regarding each LED element in
a predetermined range including the target LED element from the characteristic data memory,
the predetermined range being shifted as the target LED element shifts, and calculates drive
current correction data for the target LED element based on the plurality of types of
characteristic data regarding the target LED element and the plurality of types of characteristic
data regarding each of the LED elements in the predetermined range including the target LED
element, for reading out characteristic data of a predetermined LED element and characteristic
data of a plurality of LED elements in a predetermined range including the predetermined LED
element out of the plurality of pieces of characteristic data from the characteristic data memory,
and calculating drive current correction data for the predetermined LED element on a basis of the
characteristic data of the predetermined LED element and the characteristic data regarding each
of the plurality of LED elements in the predetermined range
wherein the drive current correction data for the target LED element is calculated based
on a predetermined equation that includes the plurality of types of characteristic data as
variables.

7. (Currently Amended) An image forming apparatus comprising:

an LED print head having an LED array formed by a plurality of LED elements which are controlled to emit light in accordance with image data and a drive circuit for driving the plurality of LED elements; and

an LED array controller for driving and controlling the LED print head, wherein the LED array controller includes:

a characteristic data memory ~~for storing~~ that stores a plurality of ~~pieces~~ types of characteristic data regarding each of the plurality of LED elements and that, when an average value for each of the plurality of types of characteristic data of all LED elements in a predetermined range that is shifted by including a predetermined LED element as predetermined LED shifts is defined in a range average value, stores the range average value for each of the plurality of types of characteristic data for each of the plurality of LED elements; and

~~a drive current correction data calculator for reading out characteristic data of a predetermined LED element and an average value of characteristic data of a plurality of LED elements in a predetermined range including the predetermined LED element out of the plurality of pieces of characteristic data from the characteristic data memory, and calculating drive current correction data for the predetermined LED element on a basis of the characteristic data of the predetermined LED element and the average value of the characteristic data regarding each of the plurality of LED elements in the predetermined range~~

that, when an LED element to be corrected is defined as a target LED element, reads out the plurality of types of characteristic data regarding the target LED element and the range average value regarding the target LED element for each of the plurality of types of characteristic data from the characteristic data memory, and calculates drive current correction data for the target LED element on a basis of the plurality of types of characteristic data regarding the target LED element and the range average value regarding the target LED element for each of the plurality of types of characteristic data, and

wherein the drive current correction data for the target LED element is calculated based on a predetermined equation that includes the plurality of types of characteristic data as variables.

8. (Currently Amended) An image forming apparatus comprising:

an LED print head having an LED array formed by a plurality of LED elements which are controlled to emit light in accordance with image data and a drive circuit for driving the plurality of LED elements; and

an LED array controller for driving and controlling the LED print head, wherein the LED array controller includes:

a characteristic data memory for storing a plurality of ~~pieces~~ types of characteristic data regarding each of the plurality of LED elements and an average value for each of the plurality of types of characteristic data obtained from all of the plurality of LED elements; and

~~a drive current correction data calculator for reading out characteristic data of a predetermined LED element and an average value of characteristic data of all of the plurality of LED elements forming the LED array out of the plurality of pieces of characteristic data from the characteristic data memory, and calculating drive current correction data for the predetermined LED element on a basis of the characteristic data of the predetermined LED element and the average value of the characteristic data of all of the plurality of LED elements constructing the LED array~~

a drive current correction data calculator that, when an LED element to be corrected is defined as a target LED element, reads out a plurality of types of characteristic data regarding the target LED element and the average value for each of the plurality of types of characteristic data from the characteristic data memory, and calculates the drive current correction data for the target LED element on a basis of the plurality of types of characteristic data regarding the target LED element and the average value for each of the plurality of types of characteristic data, and

wherein the drive current correction data for the target LED is calculated based on predetermined equation that includes the plurality of types of characteristic data regarding the target LED element and the average value for each of the plurality of types of characteristic data as variables.

9. (Currently Amended) An image forming apparatus ~~according to claim 1,~~ comprising:

an LED print head having an LED array formed by a plurality of LED elements which are controlled to emit light in accordance with image data and a drive circuit for driving the plurality of LED elements; and

an LED array controller for driving and controlling the LED print head,
wherein the LED array controller includes:
a characteristic data memory for storing a plurality of pieces of characteristic data
regarding each of the plurality of LED elements; and
a drive current correction data calculator for reading out the characteristic data from the
characteristic data memory and calculating drive current correction data for each of the plurality
of LED elements on a basis of the characteristic data, and
wherein the drive current correction data satisfies the following equation:
$$P_n = a_n + \alpha \cdot (b_n - B_{ave}) / B_{ave}$$

where P_n represents drive current correction data of the n-th LED element,
 a_n represents drive current reference data of the n-th LED element for making the light
quantity for each of the LED element substantially equal,
 b_n represents data regarding a beam of the n-th LED element,
 B_{ave} represents an average value of data regarding beams of all of the LED elements or
an average value of data regarding beams of a plurality of LED elements in a predetermined
range including the n-th LED element, and
 α represents an arithmetic coefficient regarding a beam.

10. (Currently Amended) ~~An image forming apparatus according to claim 1, comprising:~~
an LED print head having an LED array formed by a plurality of LED elements which
are controlled to emit light in accordance with image data and a drive circuit for driving the
plurality of LED elements; and
an LED array controller for driving and controlling the LED print head,
wherein the LED array controller includes:
a characteristic data memory for storing a plurality of pieces of characteristic data
regarding each of the plurality of LED elements; and
a drive current correction data calculator for reading out the characteristic data from the
characteristic data memory and calculating drive current correction data for each of the plurality
of LED elements on a basis of the characteristic data, and
wherein the drive current correction data satisfies the following equation:
$$P_n = a_n + \alpha \cdot (b_n - B_{ave}) / B_{ave} + \beta \cdot (c_n - C_{ave}) / C_{ave}$$

where P_n represents drive current correction data of the n-th LED element,
 a_n represents drive current reference data of the n-th LED element for making the light quantity for each of the LED element substantially equal,
 b_n represents data regarding a beam of the n-th LED element,
 B_{ave} represents an average value of data regarding beams of all of the LED elements or an average value of data regarding beams of a plurality of LED elements in a predetermined range including the n-th LED element,
 α represents an arithmetic coefficient regarding a beam,
 c_n represents resolution data of the n-th LED element,
 C_{ave} represents an average value of resolution data of all of LED elements or an average value of resolution data of a plurality of LED elements in a predetermined range including the n-th LED element, and
 β represents an arithmetic coefficient regarding resolution.

11-24. (Cancelled)

25. (New) An image forming apparatus according to claim 1,
wherein the plurality of types of characteristic data include light quantity data regarding each of the plurality of LED elements and data regarding a beam emitted from each of the plurality of LED elements.

26. (New) An image forming apparatus according to claim 1,
wherein the plurality of types of characteristic data include light quantity data regarding each of the plurality of LED elements and optical resolution data regarding each of the plurality of LED elements.

27. (New) An image forming apparatus according to claim 1,
wherein the plurality of types of characteristic data include data regarding a beam emitted from each of the plurality of LED elements and optical resolution data regarding each of the plurality of LED elements.

28. (New) An image forming apparatus according to claim 1,
wherein the plurality of types of characteristic data include light quantity data regarding each of the plurality of LED elements, data regarding a beam emitted from each of the plurality of LED elements, and optical resolution data regarding each of the plurality of LED elements.